



Pre-Algebra Workbook

Radicals

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MATH

RADICALS

- 1. Complete the statement.

Radicals are the opposite of _____.

- 2. $\sqrt{x}$ can also be written as _____.

- 3. $\sqrt[4]{x}$ can also be written as _____.

- 4. Find the value of $\sqrt{16}$.

- 5. Find the value of $\sqrt{36}$.

- 6. Complete the statement.

$x^{\frac{1}{3}}$ can also be written as _____.

- 7. Find the value of $\sqrt{300}$.



■ 8. Find the value of $\sqrt{5,000}$.



ADDING AND SUBTRACTING RADICALS

■ 1. Find the value of $2\sqrt{3} + 5\sqrt{3}$.

■ 2. Find the value of $\sqrt{32} - \sqrt{2}$.

■ 3. Find the value of $\sqrt{3} + \sqrt{12}$.

■ 4. Find the value of $\sqrt{16} + \sqrt{25}$.

■ 5. Find the value of $4\sqrt{3} + 2\sqrt{2} - 2\sqrt{3} - \sqrt{2}$.

■ 6. Find the value of $3\sqrt{4} - 2\sqrt{9}$.



MULTIPLYING RADICALS

■ 1. Find the value of $\sqrt{20} \cdot \sqrt{4}$.

■ 2. Find the value of $\sqrt{13} \cdot \sqrt{7}$.

■ 3. Find the value of $8\sqrt{3} \cdot \sqrt{12}$.

■ 4. Find the value of $15\sqrt{2} \cdot \sqrt{16}$.



DIVIDING RADICALS

- 1. Simplify the expression.

$$\sqrt{\frac{36}{6}}$$

- 2. Simplify the expression.

$$\sqrt{\frac{45}{5}}$$

- 3. Simplify the expression.

$$\frac{1 + \sqrt{5}}{\sqrt{5}}$$

- 4. Simplify the expression.

$$\frac{\sqrt{25}}{\sqrt{5}}$$



RADICAL EXPRESSIONS

■ 1. Find the value of $\sqrt{45}$.

■ 2. Find the value of $\sqrt{80} - \sqrt{20}$.

■ 3. Find the value of $5\sqrt{24} \cdot \sqrt{15}$.

■ 4. Complete the statement.

$\sqrt{xy}$ can also be written as _____.

■ 5. Complete the statement.

$\sqrt{\frac{m}{n}}$ can also be written as _____.

■ 6. Complete the statement.

The square root of a number multiplied by the square root of the same number is equal to _____.



■ 7. Find the value of $\sqrt{2} + \sqrt{32} - \sqrt{50}$.

■ 8. Complete the statement.

To be able to add or subtract radicals, the roots must be _____ when they are simplified.

■ 9. Roberta is trying to simplify the following radical expression,

$$\sqrt{4} + \sqrt{20} - 2\sqrt{5} + \sqrt{25}$$

and her work is shown below.

Step 1: $2 + \sqrt{20} - 2\sqrt{5} + 5$

Step 2: $2 + \sqrt{4 \cdot 5} - 2\sqrt{5} + 5$

Step 3: $2 + 4\sqrt{5} - 2\sqrt{5} + 5$

Step 4: $7 + 2\sqrt{5}$

In which step did she make a mistake? What should she have done differently, and what is the correct answer?



